UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/674,583	02/05/2001	Hongchang Bao	450108-02391	1517

20999   7590   02/07/2007

FROMMER LAWRENCE & HAUG
745 FIFTH AVENUE- 10TH FL.
NEW YORK, NY 10151

EXAMINER
OPSASNICK, MICHAEL N

ART UNIT	PAPER NUMBER
2626	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/07/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

	Application No.	Applicant(s)
Office Action Summary	09/674,583	BAO, HONGCHANG
	Examiner	Art Unit	
	Michael N. Opsasnick	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
   Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>10 November 2006</u>.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-8</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-8</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1.   The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2.   Claims 1-8 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 5-7,12-14 of U.S. Patent No. 6910010 in view of Erell et al (5778342).

As per claims 1-8, all of the claim limitations are met by the noted claims of Iwahashi et al (69100100) <u>except for</u> extracting noise from input just preceding the input of speech data. However, Erell et al. teaches extracting background noise speech vector right before speech utterance is spoken. (Erell et al, Col. 6, lines 9-12). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify

Chiang as taught by Erell. et al. in order to get the clean estimation of the background

noise signal because at that time right before utterance is spoken only the noise signal is

present in the input data and the resulting noise estimation is much more reliable (Erell,

abstract, col. 6 lines 9-12).

Examiner notes that although applicant's representative states that "Applicant

respectfully submits that the Terminal Disclaimer being filed with this Amendment obviates

these obviousness-type double patenting rejections", the Terminal Disclaimer has not been

received, and as such, the double patenting rejection remains (i.e., receipt and processing of the

Terminal Disclaimer will overcome the double patenting rejection).

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102
    of this title, if the differences between the subject matter sought to be patented and the prior art are such that the
    subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary
    skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which
    the invention was made.

4.   Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiang

(6188982) in view of Erell et al (5778342). In further view of Stammler et al (6839670).

The U.S. patents of Chiang and Erell et al. teach computer-based apparatuses (systems) and hence the methods and computer code necessary to implement these systems are inherently part of Chiang's and Erell et al.'s references.

The examiner interprets all claims reciting, "state that said data do not exists" as references to a state of silence/noise, when speech is not present in the signal.

As per claims 1, 6-8, Chiang discloses:

- extracting means for extracting feature vectors (distributions) from input speech (elem. 11, FIG. 3). The speech recognizer will necessarily convert input speech to feature vectors.

- Storing means for classification models (Hidden Markov Models) (HMMs, elem. 18, FIG. 3).

- Classifier circuit (elem. 22, FIG. 3) for the extracted feature vectors. (Abstract).

- Parallel Model Combination (PMC) circuit (elem. 16, FIG. 3) for generating and storing adapted (updated) HMMs (elem. 14, FIG. 14) based on the noise extracted from the immediately collected input data (Col. 4, lines 5-7).

Chiang does not disclose extracting noise from input just preceding the input of speech data.

Erell et al. teaches extracting background noise speech vector right before speech utterance is spoken. (Col. 6, lines 9-12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Chiang as taught by Erell. et al. in order to get the clean estimation of the background noise signal because at that time right before utterance is spoken only the noise signal is present in the input data and the resulting noise estimation is much more reliable (Erell, abstract, col. 6 lines 9-12).

The combination of Chiang in view of Erell does not explicitly teach means for a push-to-talk button to control the audio frames, however, <u>Stammler et al (6839670)</u> teaches a push to talk key to control input speech (col. 7 lines 10-15). Therefore, it would have been obvious to one of ordinary skill in the art of speech processing to incorporate a push to talk feature in the combination of Chiang in view of Erell because it would advantageously allow for the user to control which speech frames are recorded, especially allowing the user to choose continuous recording during times of low noise environment (Stammler, col. 7 lines 15-24).

As per claims 2 and 3, the examiner has interpreted them as reciting that silence (noise) is a normal (Gaussian) process, and that the estimate of the average of the frame features has a mean (claim 2 and 3) and variance (claim 2) obtained, respectively, by summing the frame feature means, and by summing their respective variances (the latter being the sum of squared frame mean estimates minus the sum of the squared of the means, statistical independence of the features and time-invariant frame statistical properties having been assumed). Gaussian (normal) noise distributions were assumed by Chiang in his PMC model (Col. 4, lines 48-51), and the above mean and variance relationship inherently

follow (see the sample MLE tutorial reference, Eq. 26 and 27 - reviewing standard

statistical results, wherein Ti is interpreted as the frame feature mean), since the summed

frame noise mean estimates are independent random variables.

As per claim 4, Chiang discloses the use of linear interpolation for re-estimation of noise model

(Eq. 6 and Col. 4, lines 54-64).

As per claim 5, Chiang discloses the use of PMC which performs the "sum of statistical

populations" of noise and clean speech portions of the overall signal because of the

independent properties of speech and noise signals (FIG. 2).

Response to Arguments

5.   Applicant's arguments filed 11/10/2006 have been fully considered but they are not

persuasive. As per the arguments towards the push to talk feature, examiner notes the

introduction of the Stammler reference to address this limitation. As per the arguments towards

the combinability of the Chiang and Erell reference, examiner refers to the arguments presented

in the previous office action (duplicated below) and the following summary: the desirability of

the combination of the Chiang and Erell reference has come from the Erell reference (Erell, to

improve the reliability of the noise estimates, abstract). If the desirability to do so came from the

Chiang reference, then the Chiang reference would be used solely as an anticipatory reference.

As per the "expectation of success" argument, examiner notes that:

a) Chiang teaches that PMC with nonstationary signals would be **inferior**, but
would still process the signals. The courts have clearly ruled and distinguished between
nonpreferred embodiments and teaching away from the claimed invention. MPEP 2123 states: "
a reference may be relied upon for all that it would have reasonably suggested to one having
ordinary skill the art; including nonpreferred embodiments. Merck & Co. v. Biocraft
Laboratories, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989). See
also Celeritas Technologies Ltd. v. Rockwell International Corp., 150 F.3d 1354, 1361, 47
USPQ2d 1516,1522-23 (Fed. Cir. 1998) (The court held that the prior art anticipated the claims
even though it taught away from the claimed invention." The fact that a modem with a single
carrier data signal is shown to be less than optimal does not vitiate the fact that it is disclosed.").

b) Chiang does teach noise sampling in the PMC (Chiang, col. 3 lines 48-50).

As per applicant's arguments with respect to 103, examiner notes that under 35 U.S.C.
103, to establish a prima facie case of obviousness, three basic criteria must be met. First, there
must be some suggestion or motivation, either in the references themselves or in the knowledge
generally available to one of ordinary skill in the art, to modify the reference or to combine
reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior
art reference (or references when combined) must teach or suggest all the claim limitations. The
teaching or suggestion to make the claimed combination and the reasonable expectation of
success must both be found in the prior art and not based on applicant's disclosure. In re Vaeck,
947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143 - § 2143.03 for decisions
pertinent to each of these criteria. Of these requirements, applicant has challenged
"demonstration of a reasonable expectation of success". Furthermore, Applicant argues that the

combination of Chiang (6,188,982) and Erell et al. (5,778,342) would not have been obvious to

one of the ordinary skill in the art because Chiang teaches that it would be undesirable to have to

collect background noise in advance (Col. 3, lines 53-60). However, MPEP 2123 states: " a

reference may be relied upon for all that it would have reasonably suggested to one having

ordinary skill the art; including nonpreferred embodiments. Merck & Co. v. Biocraft

Laboratories, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989). See

also Celeritas Technologies Ltd. v. Rockwell International Corp., 150 F.3d 1354, 1361, 47

USPQ2d 1516,1522-23 (Fed. Cir. 1998) (The court held that the prior art anticipated the claims

even though it taught away from the claimed invention." The fact that a modem with a single

carrier data signal is shown to be less than optimal does not vitiate the fact that it is disclosed.").

Here, Chiang's background references disclose collecting background noise in advance and using

it for model adaptation (Col. 3, lines 45-53). To one of ordinary skill in the art, this passage

would clearly suggest that a modification of Chiang's system with a preliminary noise collection

step (such as the one taught by Erell et al) is at least possible, if not desirable (furthermore,

undesirable is quite different from "reasonable expectation of success"). This is further supported

by Chiang who teaches that the conventional PMC model (which collects background noise in

advance) is effective against additive noises in stationary environments (reasonable expectation

of success → Col. 3, lines 45-48). Hence, the resulting combination of Chiang and Erell et al.

may not have all of the advantages of the on-line PMC method taught by Chiang, but it is

nevertheless a viable alternative that was suggested by Chiang's disclosure and is an effective

solution for reducing additive noises in stationary environments (Col. 3, lines 45-48). In closing,

applicant's assertions on the bottom of page 7 are incorrect, since applicant addressed one

criteria of obviousness (not two as mentioned on the bottom of page 7), nonetheless, the three

requirements of obviousness have been met by the office action submitted above. In response to

applicant's added arguments in the Appeal Brief, examiner notes that Erell is the source for the

desirability to use noise sources before the speech data, and Erell is the source for an expectation

for success (as well as the Chiang reference), and NOT from the alleged hindsight reasoning

argument as proposed by applicant's representative. Applicant's arguments with respect to

"obvious to try" are only valid when the prima facie case of obviousness does not contain

motivation to combine; the examiner has <u>clearly</u> provided motivation to combine the references

<u>from the Erell reference</u>.

Conclusion

6.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure. Please see the related art listed on the PTO-892, these references are pertinent to

push to talk features.

7.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

8.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Michael Opsasnick, telephone number (571)272-7623,

who is available Tuesday-Thursday, 9am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mr. Richemond Dorvil, can be reached at (571)272-7602. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Michael Opsasnick/
mno
p.e.
AU2626
2/2/07